

# **“The Limits of my Language are the Limits of my World”: The Scientific Lexicon from 1350 to 1640**

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*A diachronic compilation of different types of texts such as the Helsinki Corpus provides adequate material for a preliminary approach to the degree of diffusion of scientific/technical vocabulary (mainly nouns). The presence of this specific lexicon in writings other than scientific may be taken as an indicator of this diffusion. In addition, the lexical features of certain texts may originate a variety of language for specific purposes as a linguistic response to external demands. Socio-economic specialisation in a speech community is paralleled by the creation of specific registers.*

**Keywords:** *lexicon, register, language for specific purposes*

## **0. Introduction**

Since the ‘60s the social significance of language variation and change has been the prime concern of Sociolinguistics. The historical sociolinguist describes the different linguistic strategies used in texts within the framework of textual variation in history. Since we cannot resort to live informants to investigate past stages of the language, we must look in texts for data relating to practical linguistic performance. These texts are obtained from two different sources, written and spoken language, thus providing both formal and informal contexts. Moreover, writers tend to adapt linguistically according to their addressees: the relationship between writer and addressee generates different registers.

The *Helsinki Corpus of English Texts (HC)*, as a model of diachronic textual diversity, allows the study of, among other things, the linguistic features of different types of texts, variation in the written and oral media and the author-audience relationship. These are the three parameters that will be considered in this paper to examine the degree of diffusion of scientific/technical terms in late medieval and Renaissance England. We have chosen the HC precisely because it is a corpus including a wide range of text types so that diffusion of scientific terms in non-scientific writing can be better observed. We, like Biber (1995), believe that despite the low frequency of register markers, individual lexical items may function as defining features in topically-restricted registers. In addition, this diffusion may demonstrate that the roots of scientific writing lie before the emergence of empiricism in the seventeenth century. This study concerning the use of scientific terminology will be carried out using quantifiable data in an attempt to challenge the general assumption that modern science developed in the eighteenth century and, consequently, demonstrate that scientific writing appears long before, as Taavitsainen has already suggested for early English medical writing (2000, 2001a, 2001b, 2002). To this end, this study will be organised in five sections. In section 1 we will deal with the concept of science in the history of English (14<sup>th</sup> to 17<sup>th</sup> century). The second section will be devoted to how language transmits different modes of knowing. In section 3 we will present the material for our study taken from the *Helsinki Corpus of English Texts*. The data will be examined in section 4 which will be arranged in three sub-sections, one for each parameter of our analysis. Section 5 will offer the conclusions drawn from the preceding research.

## 1. The Concept of Science

The endeavour to create a language academy in the seventeenth century (c. 1640) reflects the attitudes and opinions of that time. The importance of fixing and regularising the language is the clear consequence of a pessimistic view of language change that considers evolution not as progress but as decay. The members of the Royal Society, i.e. professors, grammarians, dictionary makers and literary authors, planned great standardising initiatives – as declared by John Evelyn, member of the Committee, in a letter to Sir Peter Wyche – including the publication of a prescriptive grammar, a spelling reform, the creation of dictionaries, compilations of technical terms, encyclopedias and inventories of dialectal terms, anthologies of classical texts and, even, essays by members of the Society that could be used as models for writing. However, not all these plans were fulfilled.

Due to the influence of the Royal Society the scientific register appeared more clearly delimited or, at least, more directly associated with particular types of texts, mainly written ones. Such texts may address a particular type of audience. As already mentioned, though it is generally assumed that scientific writing began in the eighteenth century together with the development of modern science, the origins of the scientific register can be dated as early as 1375 (Taavitsainen, 2001a; 2002) or even earlier if we consider Bald's *Leechbook*, not only as a source of Old English vocabulary but also as a means of transmitting scientific ideas (Hogg, 1992). In fact, the consolidation of the English language after the Norman occupation affected all spheres of life. As English began to be used for many different purposes, it became clear that some fields required a special kind of language, thus originating an early version of what we nowadays call 'English for specific purposes'. The rise in the use of English for written purposes demanded by an increasingly more literate population paved the way for the creation of different registers to meet emerging social needs.

The division of the different fields of knowledge and the jargons used in each of them have evolved in parallel. Evidently, this division depends on the varying concepts of science throughout history. In pre-empiricist times the different structural organisation of the field of science was conveyed by non-specific language. By contrast, in the eighteenth century the empiricist movement helped establish different taxonomies of reality that generated several semantic or conceptual categorisations with a linguistic counterpart in various jargons.

The last quarter of the fourteenth century marks the beginning of a new discourse in English influenced by a growing interest in science. As some scholars have already pointed out, scientific discourse first appears in texts that conform to the patterns of medieval scholasticism based on the ancient Greco-Roman models. Translations from classical authors rather than inventions or discoveries were taken as authoritative with their subsequent linguistic corollaries. Syntactic constructions from other languages as well as vocabulary items were adopted by translators during this period (Taavitsainen, 2001b).

The passing of three centuries with different cultural standards brought about a transformation in the treatment of scientific matters. As Bugliarello (2001) has suggested: '...science is powerfully influenced by the culture in which it is embedded...', and so we see medieval scholastic works, full of references to authoritative statements, replaced, first by erudition in the Renaissance and, later, by a new empirical method grounded in direct observation. The method changed and, as a consequence, so did the linguistic features of scientific discourse.

## 2. Transmitting Scientific Information

We believe that specific registers must not be understood in the sense defined by Trudgill (1983) as a mere linguistic variety linked to occupations, professions or topics and characterised by vocabulary (or its use). Though this particular study deals with vocabulary, we agree with Halliday, McIntosh and Strevens's (1965) wider definition of register which includes lexical peculiarities, differences in syntactic patterns and rhetorical devices. Notwithstanding, we will focus on lexical items because, as mentioned above, they may help define a particular register. Moreover, the social dimension of any specific language involves 'variation in language conditioned by uses rather than users and ... consideration of the situation or context of use' (Romaine, 1994: 20). The variables selected for our analysis, that is to say, relationship to spoken language, audience description and text-type provide useful information about Romaine's 'uses ..., situation or context of use'.

With the general and progressive acceptance of English as a vehicle of communication valid for all purposes, the shortcomings of the vernacular began to spring up. There were some attempts at enlarging the specialised lexicon by using native resources. However, for scientists's requirements, the method of lexical enrichment that best guaranteed the presence of linguistic transparency, conciseness and utility for the reader was the adoption of loan-words, mainly from the classical tongues. The multireferentiality and subsequent ambiguity of adding new meanings to existing terms was thus avoided.

Likewise, scholars tended to benefit from the many combinatory possibilities offered by the affixes of Latin and Greek, as well as from the process of direct borrowing, since no further change in meaning was likely to occur in either language. For native forms, denotational reference was not exclusive. Since speakers used vernacular items in ordinary conversation, connotative extensions of meaning and, subsequently, greater ambiguity developed more easily (Gotti, 1992).

## 3. Corpus

Though a great many sociolinguistic studies are qualitative we have considered it necessary in this particular piece of research to quantify the uses of so-called 'scientific/technical terms'. Written texts are the only questionnaires (in a sociolinguistic sense) available for past times and therefore, this quantitative study of terms and their use will be carried out on a corpus of samples taken from the *Helsinki Corpus of English Texts. Diachronic Part* (henceforth, *HC*). Among the variables to be analysed are some of those outlined in the COCOA headers, namely, relationship to spoken language, audience description and text-type.

We have selected texts dating from 1350 to 1640. The extracts researched contain 145,301 words. Of those, we have selected the category 'nouns' (26, 873 uses in our database) since they are typical of expository prose (Biber, 1995) and because they are used to name objects, concepts and people and this is the referential meaning of most vocabulary items (Chase, 1988; Room, 1991). Sager, Dungworth and McDonald (1980: 40) also acknowledge the importance of this category when they specify the linguistic features of what they call 'special languages':

It is on the semantic level that the greatest difference is noted and this is because of the need to develop a system of references which organises and structures such notions of the special subject as

- its object: materials, instruments, mechanisms, machines, products, parts and installations,
- their properties, qualities and states,
- their quantitative parameters,
- the processes,
- the method of these processes.

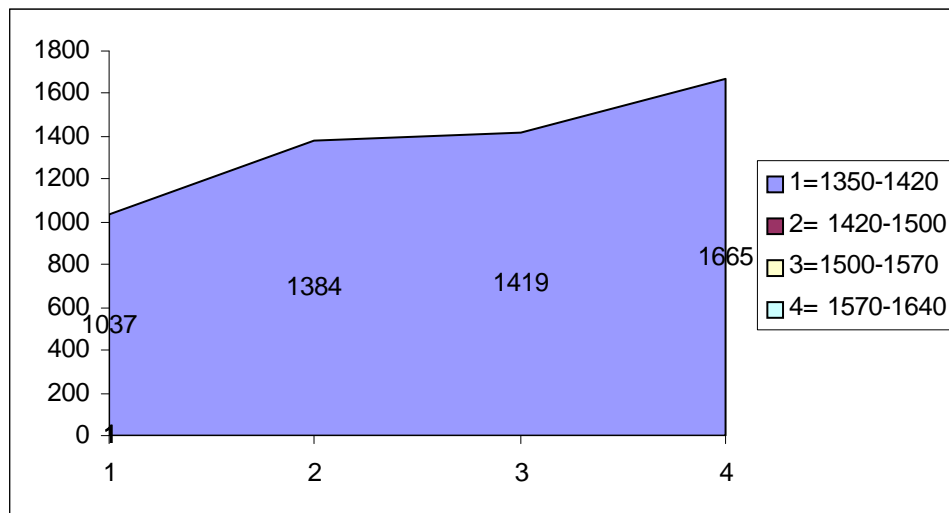
Since these notions are seen as separate and separable items, they are often conceived of as nouns or nominal groups in the first instance and appropriate adjectives and verbs are derived from the nominal form by regular processes.

The lexicon of the scientific register feeds from nouns more than from any other part of speech. More recently, it has even been claimed that nouns are one of the most relevant lexical categories in scientific terminology (Nevalainen, 1999).

Our samples contain a total of 26,854 nouns, of which scientific substantives have been used 5,505 times (since it is use and not the term itself we are analysing). They belong to four different semantic fields: 'building', 'artistic activities', 'abstractions' and 'science and technology'. 'Building' includes names of constructions, architectural and ornamental elements and building materials (*cloystre, tempulle, fortress, bricke, resiancy*). In 'artistic activities' we have included terms relating to the intellectual development of the individual as well as nouns of art-centred mental activities (*accidens, excerpt, prohemye, clavsys*). Qualities, ideas, feelings, sensations, states and behaviour form part of the semantic field 'abstractions' (*hotnesse, inanicioun, impeachment, expostulations*). Finally, specific terms which indicate a process or tool and which might relate to astronomy, astrology, geometry and the like are grouped under the field 'science and technology' (*quadrans, secant, semidiameter, almykanteras*). The total number of uses of scientific/technical nouns (5,505) represents 20.48% of the uses of all the nouns contained in our samples (26,873). This percentage indicates the widespread presence of these terms in the English vocabulary between 1350 and 1640.

#### **4. Analysis of Data**

We have retained the subperiods established by the compilers of the *HC* for our analysis. This periodisation reveals a gradual increase per period in the use of scientific/technical nouns, as shown in Figure 1.



*Figure 1 Uses per period*

This constant growth coincides with the social development characteristic of this transitional period (Old Age-New Age). Scientific investigation prospered within universities, but this was also due to progress in the national political states based on a commercial and capitalist growth which could employ researchers outside university. Moreover, the humanist movement promoted the expansion and transmission of knowledge and the printing press undoubtedly facilitated the achievement of this goal. This increase, however, was not uniform as other factors, namely, the mode of expression, the type of user and the context of use exerted an influence on the course it followed. The role of all these factors will be detailed in sections 4.1 to 4.3 below.

#### 4.1. Relationship to spoken language

‘Relationship to spoken language’ relates not to the different ways in which the text was transmitted but rather to the intention with which it was first produced. There are four different categories: ‘written’, ‘speech’, ‘script’ (texts written to be read aloud) and ‘unknown’. Table 1 offers information about the ratio of uses of nouns in each of these categories:

Subperiod	Spoken language	No. of uses
1350-1420	Unknown	95
	Speech	0
	Written	942
	Script	0
1420-1500	Unknown	80
	Speech	0
	Written	1198
	Script	106
1500-1570	Unknown	0
	Speech	47

1570-1640	Written	1280
	Script	92
	Unknown	0
	Speech	93
	Written	1394
	Script	178

Table 1 *Relationship scientific/technical nouns to spoken language*

A clear lack of uniformity is seen in the fact that none of the nouns found in the first two subperiods belongs to texts coded as ‘speech’ by the *HC* compilers. 175 (95 in 1350-1420 and 80 in 1420-1500) are classified as ‘unknown’, which is surprising if we consider that all our substantives have been found in the sermons of the Lollards (for the first subperiod) and in the text-type ‘sermons’ (for the second). Nowhere in Kytö (1991) are we told why these ‘sermons’ are not included either in ‘speech’ or ‘script’ but are coded as ‘unknown’.

The years between 1500 and 1640 show how scientific/technical nouns are used more and more often in the written medium (1394 uses in 1570-1640 but only 93 ‘speech’, all of them recorded in *The Trials of the Earl of Essex*). The fact that no speech-oriented uses of the nouns under survey have been found between 1350 and 1500 may suggest that scientific topics were studied by a few privileged scholars since use of this register entailed knowledge of reading and writing skills and of specific subjects (Trivium and/or Quadrivium) of which the majority of the population was ignorant. Nevertheless, the occurrence of 106 uses in the text-type ‘drama, mystery’ between 1420-1500 may be interpreted as a symptom of imminent change confirmed by the rise in the number of uses in the two next subperiods, 1500-1570 and 1570-1640, with 47 and 93 respectively. It is worth mentioning here that these occurrences were identified in ‘Proceedings, trials’ (speech-based texts).

In these two eModE subperiods we have also found some ‘script’ uses (92 and 178 respectively) further evidence of an incipient tendency to popularise scientific language and the growing demand of a gradually less illiterate speech community.

Scientific/technical nouns also experience a continuous rise in written texts from 1350 to 1640 (942 > 1198 > 1280 > 1394). This numerical progression might be imply that a greater number of texts were written on scientific topics. More scholars were devoted to this field of study, not only those involved in theological digressions, as in the Middle Ages, but also other men of learning who tried to understand Nature for the benefit of man. External factors, such as the economic welfare favouring scientific/technical research and the impact of printing press on the dissemination of texts, also played an indispensable role in this rise and made possible examples such as *compasse*, *astronomyeres* and *syllable* in (1) to (3) below:

- (1) Now haue with you for Leeth, whereto I no sooner came, but I was well entertained by Master Barnard Lindsay, one of the Groomes of his Maiesties Bed-chamber, hee knew my estate was not guilty, because I brought guilt with me more then my sins, and they would not passe for current there hee therefore did replenish the vaustity of my empty purse, and discharged a piece at mee with two bullets of gold, each being in value worth eleuen shillings white money: and I was credibly informed, that within the *compasse* of one yeere, there was shipped away from that onely Port of Leeth,

four score thousand Boles of Wheat, wheat. *The Pennyles Pilgrimage, 1570-1640* p. 130 C2

- (2) And for als moche as it ne reyneth not in þat contree but the eyr is alwey pure and cleer, þerfore in þat contree ben the gode *astronomyeres*, for þei fynde þere no cloudes to letten hem. Also the cytee of Cayre is right gret and more huge þan þat of Babyloyn the lesse And it sytt abouen toward the desert of Syrye a lytill abouen the ryuere aboueseyd. *Mandeville's Travels <sample 1>, 1350-1420* p. 29
- (3) For whatsoever wee know, we haue it by the hands and ministrie of men, which lead vs along like children from a letter to a *syllable*, from a syllable to a word, from a word to a line, from a line to a sentence, from a sentence to aside, and so turne over. But God himselfe was their instructour, he himselfe taught theabb partly by dreames and visions in the night, partly by revelations in the daie, taking them aside from amongst their brethreabb, and talking with them, as a man would talke with his neighbour in the way. Thus they became acquainted even with the secret and hidden counsels of God. *Two sermons upon part of S. Judes Epistle <sample 1>, 1570-1640* p. 4

#### 4.2. Audience description

The second parameter we have considered in our analysis is that of the type of audience texts were intended for. In the *HC* audience is coded as ‘professional’ or ‘non-professional’.

Basing our study on the information provided by the compilers of the *HC* we observe a progressive increase in the use of scientific nouns in texts addressed to a professional audience (*secant, syseangle, axelyne*). As shown in table 3 below such nouns are used 47 times in 1350-1420, 103 in 1420-1500, 316 in 1500-1570 and 577 in 1570-1640. In general terms, this increase coincides with the decrease of uses in texts for non-professional readers or hearers (*phisicke, disposition, bricke*). The data reveal a tendency contrary to what happens today: since present-day western society includes an overwhelming majority of literate people we find many scientific terms in texts addressed to a non-professional audience (consider, for instance, the success of informative periodical publications). A closer examination of the data, however, considering other variables such as text-type, reveals that, though specific uses increase, there is also a considerable degree of diffusion of these originally specific terms in the periods under survey (see section 4.3 below).

Many nouns in our database were found in texts addressed to an audience coded as ‘unknown’ by the compilers of the corpus (*dissension, writ, cingtales*). We believe this deserves special attention. Texts as different as *The Benedictine Rule, The English Wycliffite Sermons, A Treatise on the Astrolabe* and *The Equatorie of the Planets* have been grouped together under the same ‘unknown’ category, though we consider that they could have been coded as addressed to a professional or non-professional audience. The reason for this high number of ‘unknown’ uses (see table 2 below) may be that the compilers are somewhat vague and imprecise in reference to the sociolinguistic parameter ‘audience’ and they do not detail the criteria taken into account to define professional or non-professional audience:

In our collection of scientific and instructive writings, we have included (and coded) treatises intended for either ‘professional’ or ‘non-professional’ readers, as this

distinction may be of considerable input for the quality of the vocabulary and the general level of expression (Rissanen et al 1993: 9-10).

<b>Subperiod</b>	<b>Audience description</b>	<b>No. of uses</b>
1350-1420	unknown	764
	professional	47
	non-professional	226
1420-1500	unknown	1149
	professional	103
	non-professional	132
1500-1570	unknown	913
	professional	316
	non-professional	190
1570-1640	unknown	1050
	professional	577
	non-professional	38

Table 2 *Audience description*

The partial results mentioned above and displayed in table 2 will be, however, qualified by those discussed in the following section on the distribution of scientific/technical nouns in different types of texts.

#### 4.3. *Text-type*

The data collected from our samples as regards textual typology are displayed in table 3:

<b>Text-type</b>	<b>No. of uses</b>
X (unknown)	0
Homily	24
Handbook medicine	27
Proceedings, depositions	37
biography life saint	68
Romance	74
diary private	89
Drama mystery	106
autobiography	117
Drama comedy	123
Documents	129
proceedings trial	140
Handbook other	148
religious treatises	150
letters private	155
Science, medicine	166



travelogue	183
Bible	192
biography other	193
Preface/epilogue	194
Rule	205
History	241
Fiction	269
educational treatise	273
Law	280
Handbook astronomy	280
Sermon	322
letters non-private	417
philosophy	448
Science, other	455

Table 3 *Text-type*

To analyse the use of scientific/technical nouns according to the variable ‘text-type’ we will not follow the prototypical text categories proposed by the compilers of the *HC* since their only intention was ‘to reflect the continuity of the types of texts represented throughout the history of English’ (Kytö 1991: 55). Instead, though we respect all the established text-types, we have decided to classify them in larger groups according to two criteria: semantic affinity and type of addressee (level of literacy and professional nature).

‘Science, medicine’, ‘science, other’, ‘handbook, astronomy’, ‘handbook, medicine’ and ‘handbook, other’ form the group with the highest number of occurrences: 1076. This represents 19.54% of all the uses recorded in our database. However, not all of them are addressed to the same type of audience. Those texts labelled as ‘science, medicine’ and ‘science, other’ are intended for a specialist audience whereas ‘handbooks’ seem to have been designed to spread knowledge among the general public.

The second group we have formed features types of texts related in one way or another to law, so, we have included here ‘law’, ‘documents’, ‘letters non-private’, ‘proceedings, depositions’ and ‘proceedings, trials’. 1003 occurrences have been identified. In this particular case the 826 uses found in ‘law’, ‘documents’ and ‘letters non-private’ could be said to address a more professional audience than the remaining 177 found in ‘proceedings, depositions’ and ‘proceedings, trials’.

The third group contains religion-oriented texts. It includes ‘homilies’, ‘sermons’, ‘religious treatises’ and ‘rules’. We have extracted 697 uses of scientific/technical nouns from these texts. As in the first two groups, a further subdivision can be established based on the addressee: the 355 uses of ‘religious treatises’ and ‘rules’ are intended for a literate and specialist type of audience. A similar number of uses, 342, applies to ‘homilies’ and ‘sermons’, texts which are supposed to reach the ordinary layperson.

The next two groups may be compared according to audience description (either professional/non-professional or literate/illiterate) and mode of transmission (oral/written). ‘Fiction’, ‘romance’, ‘drama, mystery’, ‘drama, comedy’, ‘letters private’ and ‘diary private’ with 816 uses, may be included in the informative group used as a vehicle of diffusion of scientific/technical terms. By contrast, ‘educational treatises’, ‘philosophy’ and ‘history’ can

be said to address a professional and literate audience. In these ‘written’ texts the number of occurrences found is 962, which is not much higher.

‘Prefaces/epilogues’, ‘travelogue’ and ‘Bible’ together with ‘biographies’ form a mixed category. They refer to types of texts with an assorted range of contents (as is evident in the case of ‘prefaces/epilogues’) and are intended for a wide and varied audience, as illustrated by the publication of the Authorised Version of the Bible. However, the frequency of occurrence of the scientific/technical vocabulary used in these particular ‘multi-purpose’ texts does not shed any new light on the evolution of this register.

If we assemble all these data and establish a dividing line between informative and non-informative texts, we may conclude that uses of scientific/technical nouns in the first group amount to 1,794, 32.59% of the total. Uses in non-informative texts represent 50.21% (2,764 occurrences). The remaining 17.20% (947 uses) occur in texts that could have been intended for both kinds of audience. The predominance of uses in non-informative texts runs parallel to the predominance of the written medium of expression described in section 4.1 above. However, the limited disparity between informative and non-informative (17.62%) shows that scientific lexemes were circulating among the general public as early as the first half of the seventeenth century. Examples (4) to (6) below illustrate these different usages (informative, non-informative, mixed category):

- (4) The þridde word (^biddyth cristen men be war of foly dampnyng vppepeyne of þer *dampnacion*^). And, al [[3if{} þis semeth no comun sinne among men, nerþeles alle maner of men synnen herinne, as relatys þat dampne men in maner of þer cursyng and ofte tymes þei wyten not how þei ben to God; and by reputacion þat schulde be taken of Godes lawe þes men don wel as God biddeð hem do. *English Wycclifite Sermons, 1350-1420* p.238
- (5) Þerfor if by flebotomie it be more inanyssched it is to eschewe or beware þat þe pacient falle not into sum *sekenesse* of inanicioun. Anoþer reson þer is for in so hoot tyme þer is more trubblyng of humorys & by flebotomie it scholde be made more, þat perauenture þer schold folowe som oþer noyng. *A Latin Technical Phlebotomy, 1350-1420* p. 41
- (6) For the *erudicion* and lernyng of suche as ben Ignoraunt & not knowyng of it / Atte requeste of a singuler frende & gossib of myne I william Caxton haue done my debuoir & payne tenpnynte it in fourme as is here afore made / In hopyng *The Prologues and Epilogues of William Caxton, 1420-1500* p. 37

Our analysis reveals that Labov’s assumption (1994) that most linguistic changes take place in informal spoken language and spread later to the more formal varieties may be questioned. The thesis fails to account for, at least, the evolution of the scientific register and needs to be qualified. Lexical innovations found their way into the scientific register through the written mode of expression and loan-words adopted from the classical tongues were first used by scholars in their writings. The expansion of culture and literacy made an increasingly high number of users familiar with specialised vocabulary. Therefore, in this particular case, Labov’s changes from below in the social scale (1972) became changes from above, from the written to the oral genre.

Other approaches such as the Milroyan social network model (1985) may explain the presence of such items in script texts in the last three subperiods and their presence in texts classified as speech-based as well as the transmission of those changes from one speaker to another.

## 5. Conclusions

Two conclusions have emerged from our analysis. Firstly, the constant increase in the use of scientific/technical nouns coincides with language-external circumstances. The rise in literacy, the growing interest in scientific matters and technological advances due to their social and economic applications (from the fifteenth century onwards) and the diffusion of more affordably priced books seem to have assisted this increase. At least, as far as vocabulary is concerned, the evidence supports the idea that ‘English for specific purposes’ was emerging in the late fourteenth century.

Secondly, this general increase is not exclusive of restricted fields of knowledge. The evidence gathered reveals that scientific/technical nouns are widely found (20.48%, as pointed out in section 4) in the English lexicon between 1350 and 1640, confirming the expansion of ‘English for specific purposes’ through the popularisation of scientific terminology.

Our study of the three variables considered reinforces the idea that these apparently specialised terms reached a higher number of speakers than might be expected. As stated in section 4.1, our nouns have, in fact, been found not only in formal written texts but also in those more closely related to orality (those coded as ‘speech’ or ‘script’ in the COCOA headers of our samples). Since it is not likely that they would be included in texts if they were not to be understood by ordinary people, we must assume that they were already in general use, or else, the fact that they appear repeatedly (for instance, in trials, plays and sermons) could lead us to conclude that these items were no longer marked and, had, therefore, become integrated into the core lexis.

This gradual diffusion of scientific/technical nouns among all speakers of English could also be seen in our analysis of types of texts in section 4.3. The clear correspondence between type of text and relationship to spoken language made it necessary to group these types in larger categories. The results obtained here strengthen the idea that English speakers became more and more familiar with these nouns with the passage of time although, as might be expected, most instances are found in the types ‘Science, other’ and ‘Philosophy’. In short, the development of ‘English for specific purposes’ seems to run parallel to the diffusion of its lexicon.

No concluding remarks can be drawn from the type of audience that presumably received these terms since this parameter as used by the *HC* compilers is not clearly defined. The assumption that the type of audience addressed can be somehow inferred from the relationship of each text to spoken language has led us to propose the wider textual categories presented in section 4.3.

The emergence and growth of the scientific register in English is clearly linked to the economic and social changes which characterised the late medieval and early Renaissance speech community. From the perspective of language in its social context, the birth and development of this particular register can conclusively be regarded as a linguistic response to social demands.

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In *SKASE Journal of Theoretical Linguistics* [online]. 2009, vol. 6, no. 1 [cit. 2009-07-06]. Available on web page <[http://www.skase.sk/Volumes/JTL13/pdf\\_doc/03.pdf](http://www.skase.sk/Volumes/JTL13/pdf_doc/03.pdf)>. ISSN 1339-782X.